

at least one control system positioned at least in part in said housing, said control system receiving an output from said signal receiver and in response thereto actuating said plug stop to release said plug.

² 17.(Amended) The apparatus of claim ¹16, further comprising:

a plurality of said receivers distributed about said housing in [a generally downward] an orientation towards said signal transmitter;

whereupon said signal transmitter, operated from a safe location [below] away from said receivers, can direct said over-the-air signal to at least one of said receivers [as said housing rotates and/or reciprocates] despite the possibility that said housing may be rotating and/or reciprocating as said signal is transmitted by said transmitter toward one of said receivers.

³ 18.(Amended) The apparatus of claim ²17, further comprising:

a plurality of stacked housings, each selectively retaining a plug and each equipped with at least one signal receiver and control system;

said receivers on each of said housings responsive to different signals from said transmitter to accomplish orderly release of said plugs from the [lowermost] housing closest to the rig to the [uppermost] housing furthest from the rig.

⁴ 19.(Amended) The apparatus of claim ¹16, wherein said control system further comprises:

a biasing element;

at least one linkage [operably connecting] linking said biasing element to said plug stop assembly;

at least one lock mechanism [mounted to] operated by said control system to selectively lock said linkage for [allowing selective] prevention of movement thereof;

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[said lock mechanism operable to lock in a force into said biasing element and to selectively release said force so it can be transferred through said linkage to said plug stop assembly for release of said plug.]

said biasing element applying a force on said linkage when said linkage is locked in position by said lock mechanism, whereupon release of said lock mechanism by said operation of said control system, said biasing element forces said linkage to move said plug stop assembly for release of said plug.

21 21.(Amended) The apparatus of claim *20* 20, wherein said variable length link comprises:

a piston and cylinder combination;

said piston selectively lockable [by fluid force];

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a pressurized fluid control circuit in communication with said cylinder on opposed sides of said piston;

said control system further comprises:

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a valve in said pressurized fluid control circuit[,] responsive to said control system, said valve selectively operable by action of said control system into a first position to [create a locking fluid force preventing] lock said piston against movement by preventing flow in said circuit [movement] and a second position where fluid flow is possible, allowing said piston to move in said cylinder [to release said locking force responsive to a signal from said transmitter].

22 22.(Amended) The apparatus of claim *21* 21, wherein:

said linkage comprises a rack;

said plug stop assembly comprises a pin;

said pin [so disposed in said housing to] selectively [retain] retains said plug and [release] releases it upon rotation of said pin;

a pinion gear [operably] connected to said pin and said rack;

[said biasing means primed to store a force and said pin positioned to retain said plug by initial rotation of said pin in a first direction with said valve open, said stored force released by actuation of said transmitter to open said valve, which in turn transmits said stored force through said linkage to turn said pin in a second direction opposite said first direction for release of said plug.]

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cont'd
whereupon said piston is movable, with said valve in said second position, to allow said pin to be turned to a first position where said pin is selectively locked by thereafter moving said valve back to its said first position, said biasing element rotating said pin from said first to said second position, responsive to a subsequent operation of said valve back to its second position, to release said plug.

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23.(Amended) The apparatus of claim *22*, wherein:

said transmitter sends an infrared signal;

said transmitter, receiver, and/or control system comprise intrinsically safe electrical components;

said valve in said pressurized fluid control circuit is actuated by [comprises] a solenoid [in said fluid circuit].

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24.(Amended) The apparatus of claim *23*, further comprising:

a plurality of said receivers distributed about said housing in [a generally downward] an orientation towards said signal transmitter;

whereupon said signal transmitter, operated from a safe location below said receivers, can direct said signal to at least one of said receivers as said housing rotates or translates.

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25.(Amended) The apparatus of claim *24*, further comprising:

a plurality of stacked housings, each selectively retaining a plug and each equipped with at least one signal receiver and control system;

said receivers on each of said housings responsive to different signals from said transmitter to accomplish orderly release of said plugs from the [lowermost] housing closest to the rig to the [uppermost] housing furthest from the rig.

26.(Amended) A method of releasing balls or plugs for liner cementing using a rig, comprising the steps of:

erecting ^{remotely} an apparatus to drop [balls or plugs] at least one ball or plug on a casing or liner string;

electronically transmitting [a] at least one signal over the air from a safe location adjacent the rig to the remotely mounted apparatus;

[receiving] electronically sensing said over-the-air signal at the apparatus; using the signal received to trigger release of at least one ball or plug.

In claim 27, line 2, remove "one" and insert --the-- therefor.

In claim 28, line 2, remove "in series." In claim 28, line 3, before "signals" add --said--.

29.(Amended) The method of claim ¹³28, further comprising the steps of:

[storing a force in a biasing device in said apparatus;]

connecting [the] a biasing device to a linkage;

connecting the linkage to a plug support assembly;

[releasing said stored force;]

allowing the biasing device to move said linkage;

[using said released force to operate] operating said plug support assembly to release said ball or plug by virtue of said movement of [through] said linkage.

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30. (Amended) The method of claim ¹⁴29, [wherein] further comprising the steps of:
[priming said biasing device by moving said plug support assembly;
selectively fluid locking said linkage lock;
trapping a stored force in said biasing device with said locking;
using said transmitted signal to operate a valve for a subsequent unlocking;
releasing the ball or plug by said subsequent unlocking.]
placing the plug support assembly in a first position where it will support
a ball or plug;
creating a restorative force from said biasing device through said linkage on
said plug support assembly, resulting from said placing step;
locking said linkage with said plug support assembly supporting said plug
or ball and said restorative force applied to said linkage;
using at least one of said electronically sensed signals to unlock said linkage;
and
releasing said ball or plug by using said restorative force to move said plug
support assembly.

Please cancel claims 1-15 and 31-38 without prejudice to refiling them in a divisional application.

REMARKS

Applicants have carefully reviewed the Office Action mailed May 16, 1994. Applicants have made numerous revisions to just about every pending claim in this case, responsive to the extensive Section 112 rejections. While Applicants appreciate the Patent Office's need for clarity in the claims, and have responded accordingly, there are